

**CLAIMS**

We claim:

1. A software development tool employing workflows for developing user interactive programs, comprising:

means for displaying a workspace on a computer screen; and

means for displaying a plurality of objects on said computer screen individually selectable to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects has at least one interactively alterable operation parameter during execution of said user interactive program.

2. The software development tool according to claim 1, further comprising means for developing a user interactive program such that at least one properties page including at least one interactively alterable operation parameter is displayable to a user prior to execution of said user interactive program.

3. The software development tool according to claim 2, wherein said at least one properties page includes a properties page for each object having at least one interactively alterable operation parameter.

4. The software development tool according to claim 1, wherein one of said plurality of objects is a first input object for extracting first specified data from a first selected database.

5. The software development tool according to claim 4, wherein another one of said plurality of objects is a second input object for extracting second specified data from a second selected database having a different schema than said first selected database.

6. The software development tool according to claim 5, further comprising means for developing a user interactive program such that at least one properties page including an interactively alterable switch function for directing data flow from said first and second input objects to a remainder of said workflow is displayable to a user prior to execution of said user interactive program.

7. The software development tool according to claim 1, wherein one of said plurality of objects is an output object programmable to store output data in a specified output file.

8. The software development tool according to claim 7, wherein said specified output file resides on a remote computer.

9. The software development tool according to claim 7, wherein said output object is programmable to provide said output data to an executable program.

10. The software development tool according to claim 7, wherein said output object is programmable to provide said output data to an executable program, and launch said executable program.

11. The software development tool according to claim 7, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer.

12. The software development tool according to claim 7, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer, and launch said executable program.

13. The software development tool according to claim 1, wherein one of said plurality of objects performs an interactively alterable switch function for directing data flow within said workflow.

14. The software development tool according to claim 1, wherein one of said plurality of objects facilitates branch processing according to a user indicated selection from displayed information generated by said user interactive program.

15. The software development tool according to claim 1, wherein one of said plurality of objects facilitates assigning a name to a selected input port of another one of said plurality of objects so that data may be provided directly to said input port.

16. The software development tool according to claim 1, wherein one of said plurality of objects prompts a user for input when a condition is met while executing said user interactive program.

17. A method employing workflows for developing user interactive programs, comprising:

displaying a workspace on a computer screen; and

displaying a plurality of objects on said computer screen individually selectable by a program developer to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects has at least one interactively alterable operation parameter during execution of said user interactive program.

18. The method according to claim 17, further comprising generating said user interactive program such that at least one properties page including at least one interactively alterable operation parameter is displayable to a user prior to execution of said user interactive program.

19. The method according to claim 18, wherein said at least one properties page includes a properties page for each object having at least one interactively alterable operation parameter.

20. A software development tool employing workflows for developing user interactive programs, comprising:

means for displaying a workspace on a computer screen; and

means for displaying a plurality of objects on said computer screen individually selectable to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects performs an interactively alterable switch function for directing data flow within said workflow.

21. The software development tool according to claim 20, wherein one of said plurality of objects is a first input object for extracting first specified data from a first selected database.

22. The software development tool according to claim 21, wherein another one of said plurality of objects is a second input object for extracting second specified data from a second selected database having a different schema than said first selected database.

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23. The software development tool according to claim 22, further comprising means for developing a user interactive program such that at least one properties page including an interactively alterable switch function for directing data flow from said first and second input objects to a remainder of said workflow is displayable to a user prior to execution of said interactive application program.

24. The software development tool according to claim 20, wherein one of said plurality of objects is an output object programmable to store output data in a specified output file.

25. The software development tool according to claim 24, wherein said specified output file resides on a remote computer.

26. The software development tool according to claim 24, wherein said output object is programmable to provide said output data to an executable program.

27. The software development tool according to claim 24, wherein said output object is programmable to provide said output data to an executable program, and launch said executable program.

28. The software development tool according to claim 24, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer.

29. The software development tool according to claim 24, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer, and launch said executable program.

30. The software development tool according to claim 20, wherein one of said plurality of objects has at least one interactively alterable operation parameter.

31. The software development tool according to claim 20, wherein one of said plurality of objects facilitates branch processing according to a user indicated selection from displayed information generated by said user interactive program.

32. The software development tool according to claim 20, wherein one of said plurality of objects facilitates assigning a name to a selected input port of another one of said plurality of objects so that data may be provided directly to said input port.

33. The software development tool according to claim 20, wherein one of said plurality of objects prompts a user for input when a condition is met while executing said user interactive program.

34. A method employing workflows for developing user interactive programs, comprising:

displaying a workspace on a computer screen; and

displaying a plurality of objects on said computer screen individually selectable by a developer to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects performs an interactively alterable switch function for directing data flow within said user interactive program.

35. A software development tool employing workflows for developing user interactive programs, comprising:

means for displaying a workspace on a computer screen; and

means for displaying a plurality of objects on said computer screen individually selectable to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects facilitates branch processing according to a user indicated selection from displayed information generated by said user interactive program.

36. The software development tool according to claim 35, wherein one of said plurality of objects is a first input object for extracting first specified data from a first selected database.

37. The software development tool according to claim 36, wherein another one of said plurality of objects is a second input object for extracting second specified data from a second selected database having a different schema than said first selected database.



38. The software development tool according to claim 37, further comprising means for developing a user interactive program such that at least one properties page including at least one interactively alterable switch function for directing data flow from said first and second input objects to a remainder of said workflow is displayable to a user prior to execution of said user interactive program.

39. The software development tool according to claim 35, wherein one of said plurality of objects is an output object programmable to store output data in a specified output file.

40. The software development tool according to claim 39, wherein said specified output file resides on a remote computer.

41. The software development tool according to claim 39, wherein said output object is programmable to provide said output data to an executable program.

42. The software development tool according to claim 39, wherein said output object is programmable to provide said output data to an executable program, and launch said executable program.

43. The software development tool according to claim 39, wherein said output object is programmable to

provide said output data to an executable program residing on another computer.

44. The software development tool according to claim 39, wherein said output object is programmable to provide said output data to an executable program residing on another computer, and launch said executable program.

45. The software development tool according to claim 35, wherein one of said plurality of objects has at least one interactively alterable operation parameter.

46. The software development tool according to claim 35, wherein one of said plurality of objects performs an interactively alterable switch function for directing data flow within said workflow.

47. The software development tool according to claim 35, wherein one of said plurality of objects facilitates assigning a name to a selected input port of another one of said plurality of objects so that data may be provided directly to said input port.

48. The software development tool according to claim 35, wherein one of said plurality of objects prompts a user for input when a condition is met while executing said user interactive program.

49. A method employing workflows for developing user interactive programs, comprising:

displaying a workspace on a computer screen; and

displaying a plurality of objects on said computer screen individually selectable by a developer to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects facilitates branch processing according to a user indicated selection from displayed information generated by said user interactive program.

50. A software development tool employing workflows for developing user interactive programs, comprising:

means for displaying a workspace on a computer screen; and

means for displaying a plurality of objects on said computer screen individually selectable to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects facilitates assigning a name to a selected input port of another one of said plurality of objects so that data may be provided directly to said input port.

51. The software development tool according to claim 50, wherein said data is provided by a user indicating a container for said data through a string command to execute said user interactive program.

52. The software development tool according to claim 50, wherein said data is provided by another computer

program by indicating a container for said data through a string command to execute said user interactive program.

53. The software development tool according to claim 50, wherein one of said plurality of objects is a first input object for extracting first specified data from a first selected database.

54. The software development tool according to claim 53, wherein another one of said plurality of objects is a second input object for extracting second specified data from a second selected database having a different schema than said first selected database.

55. The software development tool according to claim 54, further comprising means for developing a user interactive program such that at least one properties page including at least one interactively alterable switch function for directing data flow from said first and second input objects to a remainder of said workflow is displayable to a user prior to execution of said user interactive program.

56. The software development tool according to claim 50, wherein one of said plurality of objects is an output object programmable to store output data in a specified output file.

57. The software development tool according to claim 56, wherein said specified output file resides on a remote computer.

58. The software development tool according to claim 56, wherein said output object is programmable to provide said output data to an executable program.

59. The software development tool according to claim 56, wherein said output object is programmable to provide said output data to an executable program, and launch said executable program.

60. The software development tool according to claim 56, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer.

61. The software development tool according to claim 56, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer, and launch said executable program.

62. The software development tool according to claim 50, wherein one of said plurality of objects has at least one interactively alterable operation parameter.

63. The software development tool according to claim 50, wherein one of said plurality of objects performs

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an interactively alterable switch function for directing data flow within said workflow.

64. The software development tool according to claim 50, wherein one of said plurality of objects facilitates branch processing according to a user indicated selection from displayed information generated by said user interactive program.

65. The software development tool according to claim 50, wherein one of said plurality of objects prompts a user for input when a condition is met while executing said user interactive program.

66. A method employing workflows for developing user interactive programs, comprising:

displaying a workspace on a computer screen; and

displaying a plurality of objects on said computer screen individually selectable to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects facilitates assigning a name to a selected input port of another one of said plurality of objects so that data may be provided directly to said input port.

67. A software development tool employing workflows for developing user interactive programs, comprising:

means for displaying a workspace on a computer screen; and

means for displaying a plurality of objects on said computer screen individually selectable to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects prompts a user for input when a condition is met while executing said user interactive program.

68. The software development tool according to claim 67, wherein another of said plurality of objects is a condition object facilitating interactive specification of said condition.

69. The software development tool according to claim 68, further comprising means for developing a user interactive program such that a properties page associated with said condition object and facilitating interactive specification of said condition is displayable to a user prior to execution of said user interactive program.

70. The software development tool according to claim 67, wherein one of said plurality of objects is a first input object for extracting first specified data from a first selected database.

71. The software development tool according to claim 70, wherein another one of said plurality of objects is a second input object for extracting second specified data from a second selected database having a different schema than said first selected database.

72. The software development tool according to claim 71, further comprising means for developing a user interactive program such that at least one properties page including an interactively alterable switch function for directing data flow from said first and second input objects to a remainder of said workflow is displayable to a user prior to execution of said user interactive program.

73. The software development tool according to claim 67, wherein one of said plurality of objects is an output object programmable to store output data in a specified output file.

74. The software development tool according to claim 73, wherein said specified output file resides on a remote computer.

75. The software development tool according to claim 74, wherein said output object is programmable to provide said output data to an executable program.

76. The software development tool according to claim 74, wherein said output object is programmable to provide said output data to an executable program, and launch said executable program.

77. The software development tool according to claim 74, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer.



78. The software development tool according to claim 74, wherein said output object is programmable to provide said output data to an executable program residing on a remote computer, and launch said executable program.

79. The software development tool according to claim 67, wherein one of said plurality of objects has at least one interactively alterable operation parameter.

80. The software development tool according to claim 67, wherein one of said plurality of objects performs an interactively alterable switch function for directing data flow within said workflow.

81. The software development tool according to claim 67, wherein one of said plurality of objects facilitates branch processing according to a user indicated selection from displayed information generated by said user interactive program.

82. The software development tool according to claim 67, wherein one of said plurality of objects facilitates assigning a name to a selected input port of another one of said plurality of objects so that data may be provided directly to said input port.

83. A method employing workflows for developing user interactive programs, comprising:

displaying a workspace on a computer screen; and

displaying a plurality of objects on said computer screen individually selectable by a program developer to be placed and coupled together in said workspace to define a workflow for a user interactive program, wherein at least one of said plurality of objects prompts a user for input when a condition is met while executing said user interactive program.

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